RHEOLOGICAL PROPERTIES OF FRESH AND RAP BITUMEN BLENDS WITH OR WITHOUT REGENERATING AGENT

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ABSTRACT
The rheological behaviour of various blends of a fresh binder (50/70 penetration grade) and a RAP-extracted binder, with and without regenerating agent, was studied. A mixture of vegetal oils was used as regenerating agent in different dosages (0%, 5%, 10% and 15% by mass of RAP binder). The RAP binder content used for blends was calculated in order to reproduce the exact amount of RAP binder within a mixture containing 50% of RAP material, according to its binder content. A total of 6 binders were tested, including 4 blends (corresponding to 4 regenerating agent contents) and pure fresh and RAP binders. Penetration, softening point and elongation tests were performed. Rheological behaviour was characterized in terms of complex shear modulus by means of Dynamic Shear Rheometer (DSR) tests. The steady-shear viscosity of all binders was calculated from complex modulus test results and its relation with penetration was studied.